Compliance and Enforcement Audit and Special Report on Range Activity in the Horsefly Forest District

FPB/ARC/47

July 2002

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A. Reports from the Board

Reports from the Board

In 2001, the Forest Practices Board completed a comprehensive examination of range practices carried out under the *Forest Practices Code of British Columbia Act* and related regulations (the Code) in the Horsefly Forest District. The examination had three components: an audit of range agreement-holders' compliance with the Code; an audit of the appropriateness of government enforcement of the Code for range practices; and a survey to determine whether forest resource objectives established under range agreements were being achieved on the ground.

Sections B, C, and D of this document contain the audit reports and results of the survey. This is the Board's first detailed examination of range practices under the Code.

Board report on the compliance and enforcement audits

Compliance audit

The compliance audit examined range activities for the period between May 1, 2001, and September 10, 2001. Key range activities carried out during this period, and therefore subject to audit, were:

- range-use planning for 21 range-use plans;
- grazing of approximately 18,000 animal-unit months of forage; and
- hay cutting of approximately 50 tonnes of hay.

The audit found a high level of Code compliance by range agreement-holders in the district. The planning and practices of 18 range agreements were examined by the audit and only one situation of significant non-compliance was identified. Staff observed one range licence with stream bank impacts resulting from range practices. The stream impacts extended for approximately 200 metres along the stream, and were the result of grazing levels significantly greater than approved in the range-use plan for the area. It is the Board's opinion that the stream impacts were not a result of damage caused by spring runoff.

The Horsefly Forest District has a wet climate, leading to greater forage production and a generally lower level of grazing activity compared to most districts with range agreements. Consequently, the district generally has less risk of overall impact on riparian areas from grazing activity compared to other forest districts in the province. The Board's June 2002 report, *A Results-Based Assessment of Range Practices under the Forest Practices Code in Maintaining Riparian Values*, shows that in the Horsefly Forest District, 97 percent of examined riparian sites associated with range agreements were in proper functioning condition.

The Board recognizes that grazing has an effect on the condition of the land, and a certain amount of impact to riparian areas resulting from range practices on Crown land is

considered acceptable under the Code. For example, where cattle must cross streams and other riparian features to access grazing areas, it is reasonable to expect some damage to these areas from trampling, grazing of riparian vegetation and introduction of cattle feces. Where stream impacts are confined to cattle-crossing areas, the Board believes this is within the appropriate limits of damage envisioned by the Code. This is equivalent to the Code's acceptance that harvest practices will have some effect on forest values. Range practices can be managed to localize cattle impacts to short segments of riparian areas so that the proper functioning condition of the entire riparian feature is maintained.

Enforcement Audit

The enforcement audit examined government's range enforcement activities for the period between September 1, 2000, and August 30, 2001. Government compliance and enforcement activities carried out during the audit period, and therefore subject to audit, included:

- the design of the compliance and enforcement organization and business processes;
- the planning, conduct, recording and reporting of range compliance and enforcement activities; and
- the systems and processes used to manage compliance and enforcement activity.

In enforcement audits, there is not necessarily a direct relationship between the results of forest or range practices and the appropriateness of government's enforcement of the Code. A district's compliance inspections could reveal numerous Code contraventions resulting from poor practices, and where the district addresses these contraventions through various enforcement actions available under the Code, it could achieve appropriate enforcement overall. Conversely, range agreement-holders could be conducting practices in accordance with the Code, but government's failure to inspect practices in areas of environmental risk may result in inappropriate enforcement of the Code.

The Board found that the Horsefly Forest District did not implement an effective compliance and enforcement program for range activity at the time of the audit. The fact that range practices generally complied with the Code is primarily the result of good range practices by most range agreement-holders, combined with a relatively low level of range activity in the district.

The audit evidence indicates that while range activities were inspected, they were not inspected in a way that properly evaluated activities on higher-risk sites, such as riparian areas. Consequently, the inspections did not detect or prevent the few non-compliant practices observed by the auditors.

In addition, the district did not adequately document its range inspections. Because of this, important information is not retained on file when compliance and enforcement staff leave the district. The information resides in the memory of the departing staff person and is not available to staff who take over compliance and enforcement responsibility.

Recommendation

In accordance with section 185 of the *Forest Practices Code of British Columbia Act*, the Board makes the following recommendation:

> The Ministry of Forests should implement an effective compliance and enforcement program for range practices in the audit area in accordance with its current policy.

In accordance with Section 186 of the *Forest Practices Code of British Columbia Act*, the Board requests that the Ministry of Forests advise the Board of how this recommendation has been addressed by March 31, 2003.

The Board made several recommendations in its report on range practices in riparian areas that are relevant to these audit findings, including recommendations to develop a clear Code definition of proper functioning condition and a clear measure to determine when range practices in riparian areas are not in compliance. The recommendations are not duplicated here. Instead, readers are encouraged to refer to that report, which is located on our web site at: www.fpb.gov.bc.ca/reports/special/Range/sr11s.htm

Board Chair's special report on range practices in the Horsefly Forest District

Section 189 of the Code enables the Board Chair to comment on facts and issues identified during the audit that are relevant to stewardship of the land, as generally represented in the Code's preamble.

Assessing the effectiveness of, and compliance with, range requirements under the Code provided the Board with the opportunity to assess how well the Code sets out range requirements and how well those requirements are being implemented. Auditing the appropriateness of government enforcement allowed for an assessment of how government enforcement is contributing to the achievement of Code range requirements.

In general, the results of the survey and compliance audit showed that range practices in the Horsefly Forest District have a low impact on the forest resource. Specifically, the survey noted that objectives for riparian areas have been achieved. Water-quality impacts from cattle feces are low, overall maintenance of ungulate winter range condition is satisfactory, and grazing on cutblocks has not resulted in significant negative impacts to seedlings. The compliance audit confirmed the high level of compliance with the Code in the district. The findings of the enforcement audit showed that these low impacts are not likely a result of the district's range enforcement program.

While conducting their fieldwork, auditors encountered areas of Crown grazing land in close proximity to private grazing lands. Private grazing land is not subject to the Code. Nonetheless, practices on private land may result in adverse impacts to Crown land in the form of sediment delivered to a fish stream, or by livestock trespassing from private land

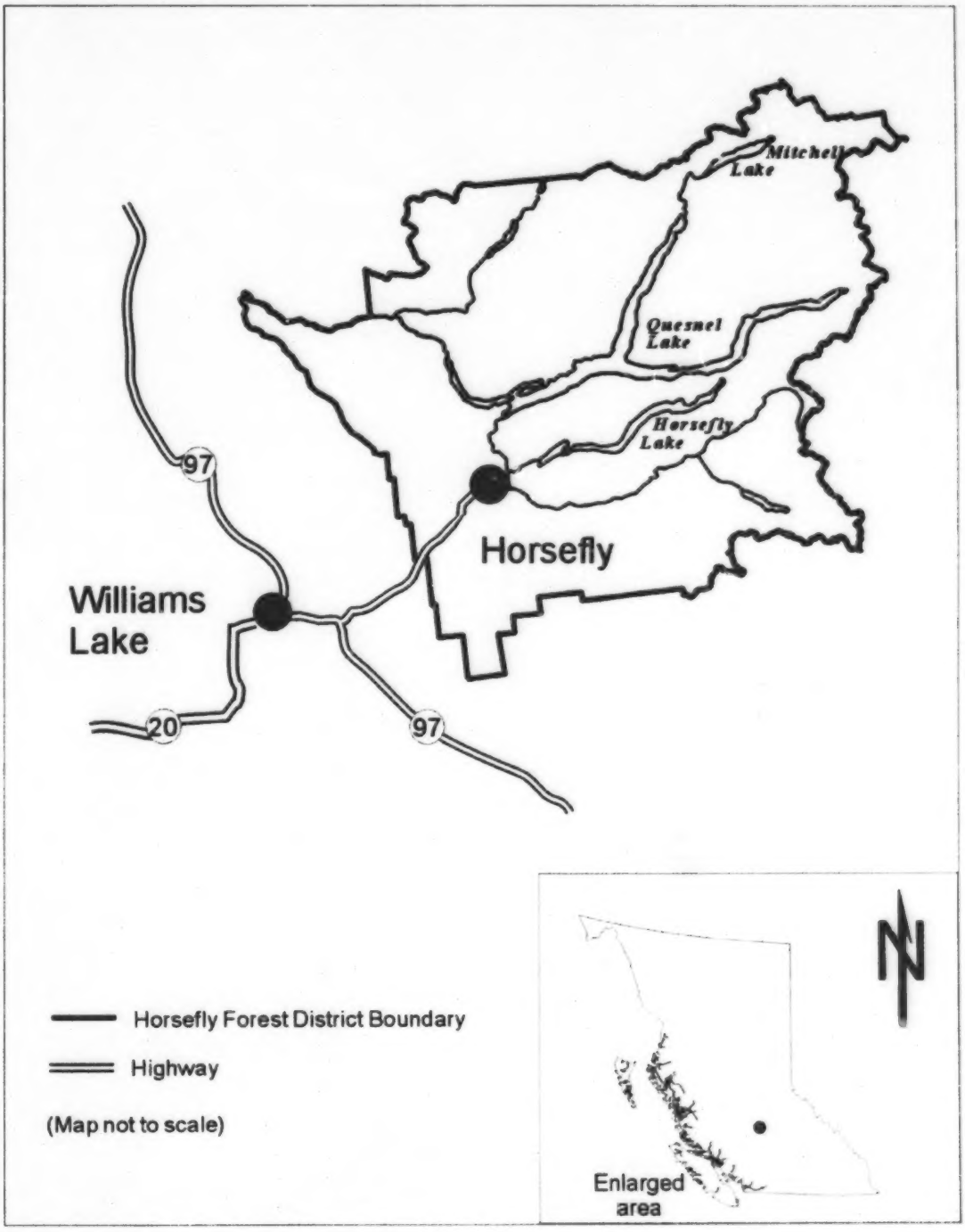
using Crown land. Much of the grazing land seen by the public is private land, and there is seldom any visible demarcation between Crown and private grazing land. As a consequence, some practices that the public sees as offending their expectations for the management of Crown rangelands may actually be occurring on private land.

The fieldwork also noted that many range-practice requirements contained in the Code are vague. The lack of clear requirements makes it challenging to effectively implement, monitor and audit the requirements. The move to a results-based code means objectives for range practices must be more specific and measurable if they are to be effectively implemented, monitored and audited.

It is reasonable to expect all agreement-holders on Crown land, including range agreement-holders, to understand the legal obligations associated with their agreement and the required results of the forestry or range practices. This knowledge will be particularly important under a results-based code. Therefore, range agreement-holders should ensure that they understand the requirements and obligations associated with their agreements. The Chair encourages regulatory agencies to provide and promote educational opportunities for range agreement-holders.

W.N. (Bill) Cafferata, RPF
Chair, Forest Practices Board
July 18, 2002

Audit of Range Activities in the Horsefly Forest District



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B. Audit of Compliance with the Forest Practices Code

Forest Practices Board Compliance Audit Process

Background

The Forest Practices Board conducts audits of government and agreement-holders for compliance with the *Forest Practices Code of British Columbia Act* and regulations (the Code). The Board has the authority to conduct these periodic independent audits under section 176 of the *Forest Practices Code of British Columbia Act* (the Act). Compliance audits examine forest and range planning and practices to determine whether or not they meet Code requirements.

Audit Standards

Audits by the Forest Practices Board are conducted in accordance with the auditing standards developed by the Board. These standards are consistent with generally accepted auditing standards.

The audits determine compliance with the Code based on criteria derived from the *Forest Practices Code of British Columbia Act* and its related regulations. Audit criteria are established for the evaluation or measurement of each practice regulated by the Code. The criteria reflect judgments about the level of performance that constitutes compliance with each requirement.

The standards and procedures for compliance audits are described in the Board's *Compliance Audit Reference Manual*.

Audit Process

Conducting the Audit

Once the Board selects an audit, the audit period and the staff and resources required to conduct the audit are determined. Board staff also meet with the party being audited to discuss the logistics of the audit before commencing the work.

All the activities carried out during the period subject to audit are identified; for example, grazing or construction of range improvements. For each activity the auditors choose the most efficient means of obtaining information to conclude whether there is compliance with the Code. Because of limited resources, auditors usually rely upon sampling to obtain audit evidence, rather than inspecting all activities.

Audit work in the field includes assessments from the air using helicopters, and intensive ground procedures such as measuring grazing utilization levels. The audit teams generally spend one to two weeks in the field.

Evaluating the Results

The Board recognizes that compliance with the many requirements of the Code is more a matter of degree than absolute adherence. Determining compliance, and assessing the significance of non-compliance, requires the exercise of professional judgment within the direction provided by the Board.

Auditors collect, analyze, interpret and document information to determine the audit results. The audit team, composed of professionals and technical experts, first determines whether forest and range practices are in compliance with Code requirements. For those practices considered to not be in compliance, the audit team then evaluates the degree to which the practices are judged not in compliance. The significance of the non-compliance is determined based on a number of criteria, including the magnitude of the event, the frequency of its occurrence and the severity of the consequences.

As part of the assessment process, auditors categorize their findings into the following levels of compliance:

Compliance – where the auditor finds that practices meet Code requirements.

Not significant non-compliance – where the auditor, upon reaching a non-compliance conclusion, determines that a non-compliance event, or the accumulation and consequences of a number of non-compliance events, is not significant and is not considered worthy of reporting.

Significant non-compliance – where the auditor determines that the event or condition, or the accumulation and consequences of a number of non-compliance events or conditions, is or has the potential to be significant, and is considered worthy of reporting.

Significant breach – where the auditor finds that significant harm has occurred, or is beginning to occur, to persons or the environment as a result of the non-compliance. A significant breach can also result from the cumulative effect of a number of non-compliance events or conditions.

Identification of a possible significant breach requires the auditor to conduct tests to confirm whether or not there has been a breach. If it is determined that a significant breach has occurred, the auditor is required by the *Forest Practices Board Regulation* to immediately advise the Board, the party being audited, and the Ministers of Forests, Energy and Mines, and Water, Land and Air Protection.

Reporting

Based on the above evaluation, the auditor then prepares the "Report from the Auditor" for submission to the Board. The party being audited is given a draft of the report before it is submitted to the Board so that the party is fully aware of the findings. The auditee is also kept fully informed of the audit findings throughout the process, and is given opportunities to provide additional relevant information and to ensure the auditor has complete and correct information.

Once the auditor submits the report, the Board reviews it and determines if the audit findings may adversely affect any party or person. If so, the party or person must be given an opportunity to make representations before the Board decides the matter and issues a final report to the public and government. The representations allow parties that may potentially be adversely affected to present their views to the Board.

At the discretion of the Board, representations may be written or oral. The Board will generally decide on written representations, unless the circumstances strongly support the need for an oral hearing.

The Board then reviews the report from the auditor and the representations from parties that may potentially be adversely affected before preparing its final report, which includes the Board's conclusions and, if appropriate, recommendations.

If the Board's conclusions or recommendations result in newly adversely-affected parties or persons, additional offers of representations would be required.

Once the representations have been completed, the report is finalized and released: first to the auditee and then to the public and government.

Report from the Auditor

1.0 Introduction

As a part of the Forest Practices Board's 2001 audit program, the Board undertook its first compliance audit of range practices under the Forest Practices Code. The Horsefly Forest District and range agreement-holders[1] (licensees) in the district were selected for audit from the population of 18 forest districts that have range programs with more than 30 range agreements. The district was selected for two audits – a compliance audit of licensees' range planning and practices, and an audit of the appropriateness of government's enforcement of the Forest Practices Code, specific to range practices. The Horsefly Forest District (the district) was selected randomly and not on the basis of location or level of performance. This report pertains to the compliance audit of range licensees in the district.

There are 44 range agreements in the district, comprising 37 grazing licences, 3 grazing permits and 4 hay-cutting licences. The agreements are mostly held by individuals (appendix A lists the licensees). The total annual allowable forage utilization under the grazing agreements is approximately 18,000 animal-unit months,[2] substantially all of which was grazed during the audit period. For hay-cutting licences, the total annual allowable harvest is approximately 70 tonnes, of which approximately 50 tonnes was harvested during the audit period.

Licensees' grazing areas vary in size from 70 hectares to over 8,000 hectares, and hay-cutting areas can be 10 to 20 hectares. Grazing is carried out during the spring, summer and fall, and is concentrated primarily in areas cleared by previous timber-harvesting activity. Hay cutting is carried out in the summer and fall.

The district is approximately 800,000 hectares in size, spanning from the Quesnel River to Wells Gray Park, within the Williams Lake Timber Supply Area (see attached map). The district contains numerous valley flats and areas of mountainous terrain, composed mostly of unfenced Crown land with intermingled parcels of private land (some fenced). Numerous streams and wetlands and abundant forage in the district provide habitat for various wildlife and fish species, including significant salmonid and ungulate populations. There are no community watersheds in the district, but there are a number of licensed domestic water intakes.

In 1994, government signed the Cariboo-Chilcotin Land-Use Plan (CCLUP). This plan provides direction to grazing and hay-cutting activities in the Horesfly Forest District through the establishment of Resource Development Zones (RDZs), which include range-

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[1] Agreements granting rights over Crown range are in the form of grazing licences, grazing permits, temporary grazing pemits, hay-cutting licences, hay-cutting permits and temporary hay-cutting permits.

[2] Animal-unit month: the amount of forage required for one month by an average animal of the genus bos, aged six months or older.

management objectives for each zone. Under the CCLUP, the Canim Enhanced RDZ, the Quesnel Lake Special RDZ, the Beaver Valley RDZ, the Cottonwood Enhanced RDZ, and the Quesnel Enhanced RDZ are located within the district.

2.0 Audit Scope

The audit assessed range planning and practices that are governed by the Forest Practices Code, including range-use planning;[3] forage utilization; stocking levels; riparian management; maintenance of range developments such as fences; cattle management; the control of noxious weeds; and hay-cutting activities.

These activities, plans and related obligations were assessed for compliance with the *Forest Practices Code of British Columbia Act* and related regulations (the Code), including consistency with relevant aspects of the Cariboo-Chilcotin Land-Use Plan. The period for which activities were examined was May 1, 2001, to September 10, 2001.

The range activities carried out during the audit period, and therefore subject to audit were:

- range-use planning for 3 range-use plans approved by the district manager during the audit period, all of which had grazing activity
- range-use planning for 18 range-use plans that were approved prior to the audit period but were extended in term for 1 year by the regional manager during the audit period
- grazing of approximately 18,000 animal unit months of forage
- hay cutting of approximately 50 tonnes of hay
- maintenance of numerous range developments, involving activities such as inspecting and repairing range fences
- identification of noxious weeds and measures taken to prevent their spread

The audit examined a sample of range licensees' grazing and hay-cutting activities. For all licensees in the district, range-use plans were reviewed to select a sample of licensees for detailed examination. Sample selection was based on risk criteria established as part of the audit. Key risks included grazing and hay-cutting activities in the vicinity of domestic water intakes; and within riparian areas, cutblocks containing young plantations, and designated ungulate winter range areas.

Based on the sampling strategy, 18 range licensees were selected for audit, which included on-the-ground assessments of range activities. Appendix B lists the licensees selected for detailed examination.

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[3] A Range-use plan is an operational plan under the Code that provides the public and government agencies with information regarding the location of proposed grazing and hay-cutting activities over a maximum period of 10 years. The plan must specify measures that will be carried out to protect forest and range resources. It must also be consistent with any higher-level plans. Range-use plans are required for all *Range Act* grazing and hay-cutting agreements.

Section 3.0 describes the audit of these activities and the audit results. The Board's approach and methodology document titled *Auditing Range Activity, Forest Practices Board Approach and Methodology, May 2001* sets out the standards and procedures that were used to carry out this audit.

3.0 Audit Findings

Planning and practices examined

The audit work on selected range areas included ground-based procedures and assessments from the air using a helicopter. The audit examined:

- 10 range-use plans approved or extended during the audit period, all of which had grazing or hay-cutting activity
- grazing of approximately 9,000 animal-unit months under 17 grazing agreements, including maintenance of range developments and actions taken to limit the spread of noxious weeds
- hay cutting of approximately 20 tonnes of hay under 1 hay-cutting licence

Findings

The audit found that, except for the situation of significant non-compliance described below, range planning and practices carried out under the range agreements audited (Appendix B) complied, in all significant respects, with Code requirements for range-use planning, grazing and hay cutting. Range-use planning was also consistent with relevant aspects of the Cariboo-Chilcotin Land-Use Plan.

The non-compliance involved forage utilization levels in a riparian area exceeding the limit prescribed in the approved range-use plan and resulting in adverse impacts to the adjacent stream.

Range Agreement Number (RAN) 074532

The audit identified a situation of significant non-compliance with the Code involving over-utilization of forage within a riparian area. The non-compliance relates to a riparian area approximately 1.8 hectares in size, and approximately 200 metres of the adjacent stream.

Forage utilization in the riparian area averaged approximately 50 percent, and a number of areas were over 90 percent utilized. The approved range-use plan for RAN 074532 limits average utilization levels in riparian areas to 35 percent, and requires that livestock be managed to ensure that the natural function of riparian areas is not impacted.

The non-compliance is significant because the natural function of the adjacent stream has been adversely impacted by livestock activity along the stream. In a number of locations along two sections of the stream, the banks have been sheared, cattle have trampled the stream bed, and accumulated sediments from the exposed banks have been introduced into

the stream. The two sections of the stream impacted are each approximately 100 metres in length.

The Code does not require range-use plans to classify streams based on their fish-bearing status. However, based on the characteristics of the stream reach impacted – an overall low gradient in the area impacted, perennial flows and the size of the stream – the impacted stream sections have the characteristics of good habitat for fish. Fish sampling would be required to confirm the status of fish presence and the significance of the stream to fish populations in the area.

The main section of the Code to which the non-compliance relates is section 98(b) of the *Forest Practices Code of British Columbia Act* (the Act), which requires grazing to be carried out in accordance with approved range-use plans.

4.0 Other Comments

The audit identified two situations that, although not considered non-compliance with the Code by range agreement-holders, have adversely impacted riparian features in the district. Both situations involve streams being adversely impacted, similar to the impacts described in section 3.0 of this report.

In one case, livestock trespassing onto Crown land from neighbouring private land have caused stream impacts. The private landowner does not have a licence to graze livestock on Crown land. This situation has been addressed in the Board's audit of the appropriateness of government's enforcement of the Code (see Introduction).

In the other case, many of the streams flowing on Crown land also have contiguous sections flowing through parcels of private land. In the course of carrying out audit field work, several of these stream sections on private land were observed to have been adversely impacted by livestock use on the private land. In some cases, the extent of the impacts appeared more significant than those described in section 3.0 of this report. The Code does not have jurisdiction over private land and, therefore, these situations do not represent non-compliance with the Code.

5.0 Audit Opinion

In my opinion, except for the significant non-compliance described below, range-use planning, grazing and hay-cutting activities carried out by licensees in the Horsefly Forest District, under the range agreements listed in Appendix B of this report, from May 1, 2001, to September 10, 2001, were in compliance, in all significant respects, with the requirements of the Code as of September 2001.

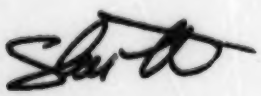
As described in section 3.0, the audit identified a situation of significant non-compliance with the Code in which utilization levels in a riparian area under agreement RAN 074532 exceeded the maximum utilization levels prescribed in the approved range-use plan. The over-utilization of the riparian area has resulted in adverse impacts to approximately 200 metres of the adjacent stream.

Without further qualifying my opinion, I draw attention to section 4.0, which describes two situations involving impacts to streams in the Horsefly Forest District, but which are not considered non-compliance with the Code by range agreement-holders in the district because the streams were either not located on Crown land, or were impacted by livestock not authorized by range agreement to graze on Crown land.

In reference to compliance, the term "in all significant respects" recognizes that there may be minor instances of non-compliance that either may not be detected by the audit, or that are detected but not considered worthy of inclusion in the audit report.

Sections 2.0, 3.0 and Appendix B of this report from the auditor describe the basis of the audit work performed in reaching the above opinion. The audit was conducted in accordance with the auditing standards of the Forest Practices Board. Such an audit includes examining sufficient range planning and practices to support an overall evaluation of compliance with the Code.

For the 26 range licensees in the Horsefly Forest District not identified in Appendix B, no opinion on compliance with the Code is provided as the audit did not examine these licensees' range activities.



Steven M. Tribe, CA
Auditor of Record
Victoria, British Columbia
April 26, 2002

Appendix A: Licensees in the Horsefly Forest District

Agreement Number	Type of Agreement	Agreement-Holder
RAN 074404	Grazing Licence	Antypowich, Lloyd
RAN 074722	Grazing Permit	Archibald, Howard and Patricia
RAN 072801	Grazing Licence	Best, Douglas and Wendy
RAN 073160	Grazing Licence	Bohmfalk, Ruth
RAN 073625	Grazing Licence	Bohmfalk, Ruth
RAN 073705	Grazing Licence	Briscoe, Howard
RAN 073405	Grazing Licence	Brown, John
RAN 073157	Grazing Licence	Doerkson, Allen
HCA 073143	Hay-Cutting Licence	Doerkson, Allen
RAN 073199	Grazing Licence	Emmelkamp, R. B.
RAN 074723	Grazing Permit	Fairburn, Ernest and Romona
RAN 074436	Grazing Licence	Gardner, Hazel
RAN 073181	Grazing Licence	Godfrey, Bob
RAN 071481	Grazing Licence	Hambllin, Dan
RAN 073155	Grazing Licence	Jacobson, G & B
RAN 074532	Grazing Licence	Jay Ray Enterprises Ltd.
RAN 073706	Grazing Licence	Johnston, Ken and Judy
RAN 073707	Grazing Licence	Kroener, Charles
RAN 073152	Grazing Licence	Krumsiek, Rainer and Gertrude
RAN 073183	Grazing Licence	Laffer, Franz and Sylvia
RAN 073404	Grazing Licence	Lakeview Ranch (Nicols)
RAN 073188	Grazing Licence	Long, Kent

Agreement Number	Type of Agreement	Agreement-Holder
RAN 074438	Grazing Licence	Maitland, Stuart
RAN 074531	Grazing Licence	Meiss Lake Ranch (Hansen)
RAN 073144	Hay-Cutting Licence	Dempster, Steven and Anne
RAN 073077	Hay-Cutting Licence	Donaldson, Bruce and Christine
RAN 073708	Grazing Licence	Miocence Ranch (Starr)
RAN 074437	Grazing Licence	Morrow, Nancy and Mervin
RAN 073196	Grazing Licence	Plummer, Ken
RAN 073494	Grazing Licence	Potter, James and Sharon
HCA 073495	Hay-Cutting Licence	Potter, James and Sharon
RAN 074516	Grazing Licence	Robbins and Underwood
RAN 073709	Grazing Licence	Robertson, Ian
RAN 072802	Grazing Licence	Rolph Stock Ranch
RAN 073186	Grazing Licence	Schlaepfer, Stephan
RAN 073710	Grazing Licence	Shumaker, Carl
RAN 074701	Grazing Permit	Stones Ranch Ltd.
RAN 073154	Grazing Licence	Tillotson, Fred
RAN 073153	Grazing Licence	Walters, Gilbert
RAN 073076	Grazing Licence	Wiggins, Lewis
RAN 073198	Grazing Licence	Wilder, Bartley (Double JR)
RAN 073197	Grazing Licence	Williams, Ronald A.
RAN 073703	Grazing Licence	Williamson, Harry 150 Mile Ranch
RAN 074405	Grazing Licence	Woodjam Ranch (Gisler)

Appendix B: Licensees Selected For Audit

Agreement Number	Type of Agreement	Agreement-Holder
RAN 073705	Grazing Licence	Briscoe, Howard
RAN 073405	Grazing Licence	Brown-John, Gillian
RAN 073144	Hay-Cutting Licence	Dempster, Steven and Anne
RAN 074436	Grazing Licence	Gardner, Hazel
RAN 074532	Grazing Licence	Jay Ray Enterprises Ltd.
RAN 073707	Grazing Licence	Kroener, Charles
RAN 073152	Grazing Licence	Krumsiek, Rainer and Gertrude
RAN 073183	Grazing Licence	Laffer, Franz and Sylvia
RAN 073188	Grazing Licence	Long, Kent
RAN 073708	Grazing Licence	Miocence Ranch (Starr)
RAN 073196	Grazing Licence	Plummer, Ken
RAN 072802	Grazing Licence	Rolph Stock Ranch
RAN 073186	Grazing Licence	Schlaepfer, Stephan
RAN 073710	Grazing Licence	Shumaker, Carl
RAN 073154	Grazing Licence	Tillotson, Fred
RAN 073153	Grazing Licence	Walters, Gilbert
RAN 073198	Grazing Licence	Wilder, Bartley (Double JR)
RAN 073197	Grazing Licence	Williams, Ronald A.

C. Audit of the Appropriateness of Government Enforcement of the Forest Practices Code

Report from the Auditor

1.0 Introduction

As part of its 2001 audit program, the Forest Practices Board (the Board) undertook an audit of the appropriateness of government's enforcement of the *Forest Practices Code of British Columbia Act* and related regulations (the Code) for range practices. Section 176(b) of the *Forest Practices Code of British Columbia Act* (the Act) mandates the Board to carry out periodic independent audits of the appropriateness of government enforcement under the Code. Three ministries have authority under the Code for enforcement—the ministries of Forests (MOF); Water, Land and Air Protection (MWLAP);[4] and Energy and Mines (MEM).

As a part of its 2001 audit program, the Board also undertook its first compliance audit of range practices under the Forest Practices Code. The Horsefly Forest District and range agreement-holders[5] (licensees) in the district were selected for audit from the population of 18 districts that have range programs with more than 30 range agreements. The district was also selected for the audit of the appropriateness of government's enforcement of the Forest Practices Code, specific to range practices, including activities such as tracking, inspecting, and reporting licensees' range activities, and taking action, where necessary, to address non-compliance with the Code.

This report pertains to the audit of government's enforcement of the Code, as it relates to range activities in the Horsefly Forest District (the district). The district was selected randomly, and not on the basis of location or level of performance.

There are 44 range agreements in the district, comprising 37 grazing licences, 3 grazing permits and 4 hay-cutting licences. The agreements are mostly held by individuals. The total allowable annual forage utilization under the grazing agreements is approximately 18,000 animal-unit months,[6] substantially all of which was grazed during the audit period. For hay-cutting licences, the total allowable annual harvest is approximately 70 tonnes, of which approximately 50 tonnes was harvested during the audit period.

Licensees' grazing areas vary in size from 70 hectares to over 8,000 hectares, and hay-cutting areas can be 10 to 20 hectares. Grazing is carried out during the spring, summer and fall, and is concentrated primarily in areas cleared by previous timber-harvesting activity. Hay cutting is carried out in the summer and fall.

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[4] MWLAP carries out functions formerly carried out by the Ministry of Environment, Lands and Parks

[5] Agreements granting rights over Crown range are in the form of grazing licences, grazing permits, temporary grazing permits, hay-cutting licences, hay-cutting permits and temporary hay-cutting permits.

[6] Animal-unit month: the amount of forage required for one month by an average animal of the genus bos, aged six months or older.

The district is approximately 800,000 hectares in size, spanning from the Quesnel River to Wells Gray Park, within the Williams Lake Timber Supply Area (see attached map). The district contains numerous valley flats and areas of mountainous terrain, composed mostly of unfenced Crown land with intermingled parcels of private land (some fenced). Numerous streams and wetlands and abundant forage in the district provide habitat for various wildlife and fish species, including significant salmonid and ungulate populations. There are no community watersheds in the district, but there are a number of licensed domestic water intakes.

In 1994, government signed the Cariboo-Chilcotin Land-Use Plan (CCLUP). This plan provides direction to grazing and hay-cutting activities in the Horesfly Forest District through the establishment of resource development zones (RDZs), which include range-management objectives for each zone. Under the CCLUP, the Canim Enhanced RDZ, the Quesnel Lake Special RDZ, the Beaver Valley RDZ, the Cottonwood Enhanced RDZ, and the Quesnel Enhanced RDZ are located within the Horsefly Forest District.

2.0 Audit Scope And Approach

The audit examined government's planning, management direction and operational activities related to enforcement of the Code (for range activities), for the period September 1, 2000, to August 30, 2001.

The audit used criteria to assess three broad aspects of government enforcement: the design of the compliance and enforcement (C&E) organization and business processes; their application in practice (through sampling both compliance and enforcement 'transactions' in a number of areas, such as compliance inspections); and the management framework used to direct, support, monitor and report on C&E activity.

Audit criteria

In assessing the appropriateness of government's enforcement of the Code, the following assessment criteria were used:

- Government agencies obtain, use and maintain adequate information on the range activities subject to compliance and enforcement.
- Government agencies have an effective way of identifying risks associated with range activities and utilizing risk in inspection planning.
- Government agencies conduct a sufficient number of inspections, in a fair, objective and effective way, and accurately record and report results.
- Investigations and determinations are carried out in all applicable situations, and only when warranted. They are performed in a fair, objective and consistent way, and are accurately recorded and reported.
- Agencies establish, through range-use plan approval and related processes, expectations for range practices, which are enforceable and in accordance with the Code.

- There are established organizational structures, policies and processes that contribute to and support appropriate enforcement of the Code.
- The decisions and actions of different parts of government responsible for enforcement of the Code are appropriate and coordinated.
- Reporting systems provide adequate information on agency performance in relation to enforcement objectives.

Candidate activities

The range activities carried out during the audit period, and therefore subject to government enforcement, were as follows:

- grazing of approximately 18,000 animal-unit months, and related livestock management activities, under 40 range agreements
- hay cutting of 50 tonnes of hay, under 4 hay-cutting licences
- maintenance of numerous range developments, involving activities such as inspecting and repairing range fences
- licensee obligations for the identification of noxious weeds and measures taken to prevent their spread

Government compliance and enforcement activities carried out during the audit period, and therefore subject to audit, included:

- the design of the C&E organization and business processes
- the planning, conduct, recording and reporting of C&E activity related to range
- the systems and processes used to manage C&E activity

MWLAP's approach to Code C&E does not involve a program of compliance inspections of range activities. Considerable reliance is placed on MOF. The audit examined the appropriateness of this arrangement in relation to MWLAP's responsibilities for water, fish and wildlife values.

The Ministry of Energy and Mines does not have enforcement responsibilities related to range activities under the Code.

Audit work and activities examined

The audit work included:

- interviewing MOF and MWLAP staff and management
- reviewing and evaluating agency policies, processes and controls
- office-based procedures on a wide selection of MOF C&E inspections

- detailed field examination of activities under 17 grazing licences and 1 hay-cutting licence, on the ground and by helicopter
- seeking input from all range licensees in the district through a written survey
- interviewing select range licensees

3.0 Overall Conclusions

The audit examined the C&E organization and activities of the agencies with Code-enforcement responsibilities for range activity within the Horsefly Forest District for the period September 1, 2000, to August 30, 2001.

Ministry of Forests

The Horsefly Forest District has not implemented a program of compliance and enforcement for range activity under the Code, and therefore has not achieved the Board's criteria for appropriate enforcement. With the exception of some ad hoc inspections, systems and processes in the district have not been sufficiently updated since the inception of the Code, or otherwise implemented, to fully address the ministry's C&E responsibilities for range practices, created by the Code.

District management indicated that the district's mostly informal approach to C&E for range activities constitutes a program of compliance and enforcement. In practice, the district's approach to compliance and enforcement for range activity has been to promote compliance with the Code predominantly through the administration of range permits under the *Range Act*, preparing range-use plans on behalf of range agreement-holders, and frequent interaction with the ranching community by maintaining a field presence and regularly attending local livestock association meetings. This does not constitute a program of compliance and enforcement for range activities under the Code.

Notwithstanding the absence of a C&E program in the district, range agreement-holders in the district have achieved a high level of compliance with the Code. The low risk of environmental impact associated with range activities in the district has contributed to the level of compliance achieved, as has the district's efforts to promote compliance with the Code.

The audit did, however, identify a small number of instances where grazing activities adversely impacted riparian features beyond the level anticipated by the Code. In one case, the impacts were severe enough that the level of grazing was determined to represent significant non-compliance with the range licensee's approved range-use plan. In these cases, the weaknesses in the district's enforcement program prevented detection and appropriate compliance or enforcement action.

To appropriately enforce the Code, the following weaknesses in the district's C&E program need to be addressed:

- improved focus of compliance inspections on areas at higher risk of environmental impact from range activities;
- more comprehensive documentation of inspections performed;
- implementation of supervisory and management reporting systems, to provide meaningful information to district management on the effectiveness of the district's C&E program;
- separation of enforcement responsibilities from the performance of compliance inspections and promotion of compliance (i.e. range staff responsibilities); and
- improved tracking and investigation of complaints received from the public, including reporting the disposition of complaints to both the complainant and district management.

These weaknesses could be addressed, and appropriate enforcement of the Code achieved, without substantial additional resources or changes to the district's current approach to enforcing the Code. In fact, since the audit, the district has initiated measures to address some of these weaknesses, including early implementation of MOF's updated compliance procedures and the preparation of a district inspection plan for the last quarter of the 2002 fiscal year.

Ministry of Water, Land and Air Protection

The Ministry of Water, Land & Air Protection in the district does not have a program of C&E for range activity under the Code. MWLAP staff indicated that staff workload and other leading priorities led them to focus their efforts on other responsibilities.

Despite the other priorities of MWLAP in the district, an absence of compliance and enforcement of the Code for range activity is not appropriate. At a minimum, formal arrangements with MOF to monitor and report to MWLAP on the status of range activity near domestic water intakes, designated ungulate winter range, and key fisheries values would have been more appropriate.

MWLAP indicated that increased monitoring effort is expected in the future.

4.0 Findings And Conclusions

The detailed findings and conclusions of the audit are set out in this section by assessment criteria.

4.1 Audit criterion - *Government agencies obtain, use and maintain adequate information on the range activities subject to compliance and enforcement*

In order to undertake compliance and enforcement activities with any assurance as to whether the right activities are being examined, the ministries must be informed of the

range activities taking place in the district. If the agencies do not know about all grazing and hay-cutting activities, there is little chance that the activities will be inspected, and there is an increased chance that non-compliance with the Code will not be identified and addressed.

The audit assessed whether government has systems in place whereby it obtains, uses and maintains sufficient information about range activities to enable an effective program of periodic inspections.

The primary means by which the district maintains information about livestock locations and risk areas in the district is through the district range officer's experience and knowledge of the area. Although some information is maintained in MOF's forest tenure administration system, and range-use plans establish general locations and timeframes for grazing activity, this information is quite general and is not used in planning inspections.

Considering the lengthy period that the range officer has worked in the district (over 20 years), the relative predictability of livestock behaviour over time and the static topography of the land base, the range officer's experience does enable less formal inspection planning. However, maintaining specific information on key risk features, such as riparian areas and the timing of grazing activities in proximity to these areas, would better enable inspections to be focused on areas of higher risk to environmental impact from grazing activity. It would also enable the district to better demonstrate that inspection planning appropriately considers risk.

Conclusions

The district generally has adequate knowledge of the locations and timing of grazing and hay-cutting activity. Some improvement is required if inspections are to be focused on areas with higher risk of environmental impact from range activities.

4.2 Audit criterion - *Government agencies have an effective way of identifying risks associated with range activities and utilizing risk in inspection planning*

Once government agencies have determined the range activities eligible for inspection, they need an effective method of determining where to place their inspection efforts. Because they cannot inspect all range activities conducted by all licensees, they need a way to allocate their resources to minimize the risk that impacts to the environment are not detected.

The audit assessed whether government has an effective process for identifying risk and uses information on risk to target inspection efforts to areas with higher risk of environmental impact from range activities.

The district has not established a risk assessment process for grazing and hay-cutting activities. As discussed in the preceding section, in the absence of established processes, the range officer relies on his experience to plan inspection activity.

The audit analysis of district inspection activity indicates that inspections did not involve sufficient examination of range activities near key risk features. No inspections of grazing activities near licensed domestic water intakes were conducted, and the audit was able to verify only two inspections of grazing activities in riparian areas. The district indicated that grazing activities in riparian areas are regularly inspected, and estimated at least 20 such inspections are completed each year. However, the inspections are not recorded and the results are not documented.

The audit identified one riparian area where the grazing utilization levels set out in the approved range-use plan had been exceeded, and the adjacent stream had been adversely impacted. The district had inspected the range licensee's grazing activities several times during the audit period, however it had not inspected this riparian area. The auditor considered the riparian area to be a high-risk feature within the licensee's grazing area and, based on the impacts to the adjacent stream, the overgrazing in the riparian area has been ongoing for longer than the current grazing season.

MOF is in the process of implementing updated compliance procedures, which include a formal risk-assessment process. The range officer received preliminary training on the new compliance procedures in 2001; however, ministry-wide full implementation of the procedures was not anticipated until April 2002.

Conclusions

The district has not implemented an effective way of identifying risk associated with range activities or of utilizing risk in inspection planning.

Inspections are primarily conducted ad hoc, without adequate consideration of past grazing activity, proximity to risk features and objectives for overall inspection coverage.

High forage production and low grazing intensity in the district result in an overall low risk of environmental impact from range activity.

Implementation of MOF's new compliance procedures should improve performance in this area.

4.3 Audit criterion - *Government agencies conduct a sufficient number of inspections, in a fair, objective and effective way, and accurately record and report results*

The effective conduct of inspections enables government to assess the results of range practices, identify potential contraventions of the Code and initiate compliance and enforcement actions. Weaknesses in inspections reduce government's ability to appropriately enforce the Code.

The audit assessed whether government's inspections covered a reasonable proportion of persons engaged in range practices, significant resource features (fish streams, designated ungulate winter range areas, etc.) and different geographic areas. The audit also assessed

whether the number of inspections conducted was sufficient and whether the inspections were properly planned and performed.

Inspection approach

The district had not prepared an overall inspection plan for range activities during the period examined by the audit. However, the district range officer stated that his objective for inspections was to inspect each range agreement-holder at least once each year.

The audit analysis indicates that the district range officer spends approximately 50 percent of his time in the field. However, it also indicates that approximately one-half of this time is related to responsibilities not related to range.

As discussed in the preceding section, inspection selection is primarily ad hoc. The audit identified several range agreement-holders whose range activities had not been inspected during the period of the audit, and several who were inspected numerous times, despite an absence of non-compliance with the Code.

Inspection conduct

The audit assessed whether staff responsible for the conduct of inspections fully prepare for each inspection, and whether inspections performed accurately and completely assess the ground conditions and the results of the range practices inspected (i.e., inspectors observe and recognize any potential Code contraventions).

Inspection plans are not prepared prior to the conduct of an inspection. The range officer indicated that his experience enables him to conduct inspections without formal planning, and that during an inspection he inspects all aspects of range activities.

The audit identified a number of range agreement-holders whose range practices were not consistent with their approved range-use plans. In several cases, the potential non-compliance was minor and no environmental impact was observed or is likely to result (i.e., non-adherence to approved tenure boundaries or grazing schedules).

However, in three cases, the potential non-compliance was more significant as riparian features had been adversely impacted. The deteriorating condition of the riparian features indicates that the level of utilization in the riparian areas has been ongoing for longer than the current grazing season. In two of these instances, the range practices had been inspected by the range officer during the audit period. In both cases, the range officer had not recognized that the grazing activities resulting in impacts to the adjacent riparian features were potentially in contravention of the approved range-use plans.

During the period of the audit, there were no potential contraventions of the Code identified by the range officer. The district informed the auditors that there has been no non-compliance with the Code relating to range activities in the district since the implementation of the Code.

Inspections result in an appropriate action or decision

Because the district had not identified any potential contraventions of the Code, there were no compliance actions, instructions, violation tickets or other compliance and enforcement actions during the audit period. As described above, the audit identified a few situations that warranted some type of compliance or enforcement action.

In one situation, the range officer observed that grazing levels were adversely impacting a riparian area, and determined that the impacts were not significant enough to warrant any compliance or enforcement actions. Our examination of the area, and interview of the rancher, identified that livestock trespassing from adjacent private land had caused the impacts to the stream.

Inspections are adequately documented

The range officer estimated that he documents 20 percent of inspections. For those documented, the documentation was generally quite limited and not sufficient to determine where the inspector went, the type of inspection made, specific features examined, the results of those examinations and what follow-up steps may be required. Although range-unit reports are completed annually, the information in the reports is also very limited.

MOF has a checklist to assess the properly functioning condition of riparian features. However, the range officer did not use the checklist in the inspections performed during the audit period. Similarly, no information was recorded during inspections about the level of forage utilization in relation to specific requirements in range-use plans–a key indicator of effective livestock management and compliance with the Code.

Conclusions

The district range officer maintains sufficient field presence, considering the low risk of environmental impact associated with range activity in the district.

District inspections are not effective in identifying potential non-compliance with the Code, and are not adequately documented.

A small number of generally minor potential non-compliance situations were not identified by district inspections–two in areas that had been inspected by the district. However, in three cases, the potential non-compliance was more significant as riparian features had been adversely impacted.

4.4 Audit criterion - *Investigations are conducted in all applicable situations and only when warranted. They are performed in a fair, objective and consistent way, and are accurately recorded and reported*

There were no investigations of potential non-compliance during the audit period. The audit did, however, identify a small number of situations that warranted investigation or some form of action to address the issues.

4.5 Audit criterion - *Determinations are made in all applicable situations and only when required. They are performed in a fair, objective and consistent way, and are accurately recorded and reported*

There were no determinations of non-compliance with the Code during the audit period.

Conclusions

The audit was not able to draw a conclusion about performance of these criteria.

The audit identified some situations of potential non-compliance with the Code that warranted investigation.

4.6 Audit criterion - *Agencies establish, through operational plan approval and related processes, expectations for range practices which are enforceable and in accordance with the Code*

All range-use plans were prepared by MOF range staff and given effect by the Horsefly district manager. All plans had been endorsed by the range agreement-holders.

In the fall of 2000, legislation governing range-use planning underwent its largest change since the implementation of the Code. During the audit period, MOF range staff were in the process of conducting field visits of range tenures with range-use plans expiring in 2001. As a result, during the audit period a large number of range-use plans had been extended in term for one year to enable field visits and allow time for updating range-use plans to the new Code requirements.

For those plans that were approved since the changes in the Code, specific and enforceable measures were established for grazing levels in riparian areas and known ungulate winter range areas (two key environmental values in the district), and measurable limits for grazing activity in plantations were established.

Conclusions

The district has established expectations for range practices that are enforceable and in accordance with the Code.

4.7 Audit criterion - *There should be organizational structures, policies and processes that contribute to and support appropriate enforcement of the Code*

The organizational structure, policies and processes related to the range program in the district have not changed since the implementation of the Code. Consequently, there are limited policies or processes related to C&E for range.

There was no business plan establishing monitoring and resource needs, or a monitoring plan establishing expectations specific to the range program.

There were no supervisory or monitoring processes to evaluate the completeness or effectiveness of compliance inspections performed, and management reports were very limited. There was no facility to provide feedback such as inspection coverage by risk category, or the nature and significance of potential non-compliance with the Code.

Since the audit, the district has initiated measures to address some of these weaknesses. Implementation of MOF's updated compliance procedures in this area has been expedited, and a district inspection plan was prepared for the last quarter of the 2002 fiscal year.

Conclusions

The district has not established sufficient organizational structure, policies and processes to support or promote appropriate enforcement of the Code.

Implementation of MOF's updated compliance procedures will address some of these weaknesses.

4.8 Audit criterion - *The decisions and actions of different parts of government responsible for enforcement of the Code are appropriate and coordinated*

MWLAP has removed itself from Code enforcement for range activity.

Although MWLAP maintains a staff position in the district, whose responsibilities include range monitoring, no monitoring of range practices was conducted. MWLAP efforts were focused in other areas such as harvesting and strategic-level planning.

There was no reporting between MWLAP and MOF of the results of MOF inspections of range activity.

Conclusions

There is no coordination of the compliance and enforcement activities of MWLAP and MOF related to range practices.

MWLAP relies substantially on MOF for compliance and enforcement activities related to water quality, fish and wildlife.

4.9 Audit criterion - *Reporting systems provide adequate information on agency performance in relation to enforcement objectives*

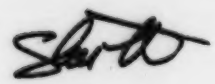
As described above, organizational structure, policies and processes related to the range program in the district have not been updated to reflect implementation of the Code.

Specific objectives for performance of the C&E program for range have also not been developed.

The primary means used by the district to gauge the success of the range program are the observations of the range officer during his field visits, and through public comments made at local cattleman association meetings, which the range officer–and sometimes the district manager–attend.

Conclusions

Although the range officer obtains some valid information about the success of the range program during field visits and through attendance at cattleman association meetings, this information is not sufficient to adequately assess performance of C&E for the range program.



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April 26, 2002

D. Survey of Effectiveness of Range Practices

Survey of Effectiveness of Range Practices

1.0 Introduction

The Forest Practices Board has completed a comprehensive examination of range practices carried out under the Forest Practices Code in the Horsefly Forest District. The examination has three components:

1) a range practices compliance audit of the range agreement-holders;
2) an enforcement audit of the appropriateness of government's enforcement of range practices; and
3) an effectiveness survey to determine whether forest resource objectives established under range agreements were being achieved on the ground.

This report describes the results of the survey. The results of the compliance audit and the enforcement audit are presented in parts B and C of this report.

2.0 Forest Resource Objectives for Rangeland in the Horsefly Forest District

Legislation affecting range practices on Crown land is described in the *Forest Practices Code of British Columbia Act* (the Act), the *Operational Planning Regulation* (OPR) and the *Range Practices Regulation*. The range-use plan for each agreement describes the objectives that are to be achieved under the licence and the strategies and measures that will be used to achieve those objectives.

The desired forest-resource objectives that are common to the Horsefly range-use plans include:

- achieving proper functioning condition of riparian areas for streams, lakes and wetlands;
- maintaining water quality;
- ensuring adequate forage in ungulate winter ranges; and
- maintaining healthy seedlings in regenerating cutblocks.

The achievement of these four objectives was determined by measuring the on-the-ground results from a survey of 17 range tenures in the Horsefly district. Range tenures are concentrated in the western portion of the district, primarily around the communities of Horsefly and Likely. The fieldwork was completed over a two-week period in early October 2001. The survey assessed 87 riparian sites, 10 cutblocks and 6 ungulate winter ranges.

3.0 Conclusions of the Survey

The success in achieving the four forest resource objectives is described in Table 1. Overall, the impact of livestock on forest resources in the Horsefly district is considered low and the forest-resource objectives have been met.

The remainder of this report provides details on the survey methods used to measure achievement of the objectives, and the results of the survey.

Table 1: Achievement of forest-resource objectives

Objective	Result
1. Proper function condition (PFC) of riparian areas	Very high average riparian health scores 97% of sites meet PFC
2. Maintaining water quality	Low number of cattle feces in vicinity of water bodies
3. Ensuring adequate forage in ungulate winter ranges	Low level of browse by cattle in winter range areas Low level of damage to shrubs caused by excessive browsing
4. Maintaining healthy seedlings in regenerating cutblocks	Overall damage slightly exceeds guidelines

4.0 Methods and Results

Objective 1: Proper functioning condition of riparian areas

The main mechanism in the Forest Practices Code for protection of riparian areas is the requirement in range-use plans to meet proper functioning condition. The survey of riparian areas in the Horsefly Forest District was completed as part of a more extensive riparian study, and the reader is referred to the Forest Practices Board report, *A Results-Based Assessment of Range Practices under the Forest Practices Code in Maintaining Riparian Values (2002)*, for a complete description of proper functioning condition and the survey methods.

Methods

Field assessment methods were based on the *Lotic Health Assessments: Riparian Health Assessment for Streams and Small Rivers* (Riparian and Wetland Research Program, University of Montana, 2001). This method evaluates the following 10 characteristics of the riparian zone along a representative transect of each stream reach or lake/wetland shore surveyed:

- percentage of vegetative cover
- percentage of livestock-caused bare ground
- percentage of cover of noxious weeds
- percentage of cover of disturbance-caused vegetation
- browsing of shrubs (percent utilization)
- percentage of streambank/shoreline with deep-rooted vegetation
- length of streambank/shoreline eroded by livestock
- length of stream channel bed disturbed by livestock
- percentage of riparian area with pugging or hummocking
- upland condition

A total of 87 riparian sites were surveyed in the district. Stream reaches were selected in each pasture using contour maps, aerial photos or helicopter overflight. A minimum of 100 metres of each stream reach was surveyed on the ground. All assessments were made on one side of the stream only. Beginning points were randomly located, but were at least 50 metres from fences or roads. This was done so sampling would not be biased by including highly-disturbed areas that are not representative of the overall stream.

After field assessments were completed, the value for each individual indicator was converted to a score. The scoring system (Table 2) is based on inventory and monitoring conducted on over 3,000 sites in Montana (Hansen et al, 1995).

Table 2: Thresholds and scores for the riparian indicators

Indicator	Proper Functioning Condition		Functional at Risk	Non Functional
Vegetative cover	>95%	85-95%	75-85%	<75%
Score	*6*	*4*	*2*	*0*
Livestock-caused bare ground	<1%	1-5%	5-10%	>10%
Score	*6*	*4*	*2*	*0*
Noxious weeds	<1%	1-5%	5-20%	>20%
Score	*3*	*2*	*1*	*0*
Increaser-invader species	<5%	5-25%	25-50%	>50%
Score	*3*	*2*	*1*	*0*
Browsing	0-5%	5-25%	25-50%	>50%
Score	*3*	*2*	*1*	*0*
Deep-rooted streambank vegetation	>85%	65-85%	35-65%	<35%
Score	*6*	*4*	*2*	*0*
Streambank eroded	<5%	5-15%	15-35%	>35%
Score	*6*	*4*	*2*	*0*
Channel bed disturbance	<5%	5-15%	15-35%	>35%
Score	*6*	*4*	*2*	*0*
Pugging/hummocking	<5%	5-15%	15-25%	>25%
Score	*3*	*2*	*1*	*0*
Upland condition	VL	L	M	H
Score	*3*	*2*	*1*	*0*

By adding the scores for all the indicators, an overall riparian health score can be calculated. The overall riparian health score is expressed as a percentage of the maximum possible score. This percentage score is then used to determine if the site is at proper functioning condition (Table 3).

Table 3: Determining Proper Functioning Condition

Riparian Health Score	Rating
>80 percent	Proper functioning condition
60 to 80 percent	Functional, at risk
< 60 percent	Non-functional

Results

The individual scores for each indicator were averaged. For example, the average score for vegetative cover was 95 percent. The average score for every individual indicator was over 90 percent.

The riparian health score for any one site is the sum of the 10 individual riparian indicator scores for that site, expressed as a percentage of the maximum possible sum. The average riparian health score, based on all 87 sites, is calculated separately for streams and for wetlands (Table 4).

Table 4: Riparian health scores for Horsefly

Average riparian health score – streams	97%
Average riparian health score – wetlands	95%
Average riparian health score – overall	96%
Percentage of sites at PFC	97%
Percentage of sites at FR	3%
Percentage of sites at NF	0%

Overall the riparian health scores are very high, averaging 96 percent. Ninety-seven percent of the sites were at proper functioning condition and only three percent were functioning at risk. No sites were found to be non-functional. The objectives for riparian areas have been achieved.

Objective 2: Maintaining water quality

There are no community watersheds in the Horsefly Forest District, but there are a large number of domestic water intakes. Water quality in streams and lakes is affected by sediment inputs and fecal deposits near the water body. In this survey, we did not directly measure water quality or sediment inputs, but focused on the amount of fecal deposits as an indicator of potential water-quality impact.

Methods

Counts of cattle feces were made at 57 streams or lakes. Counts were made over a 100-metre transect in a 3-metre band adjacent to the water body. Studies have shown that fecal material generally does not significantly enter a water body at distances greater than three metres from the water's edge (Buckhouse, 2001). No water samples were collected or water

sample analyses conducted in this survey, as one-time water quality sampling is not representative.

Results

There are no benchmarks in any Code guidebooks, or in any scientific literature, for determining water quality impacts associated with cattle feces. Consequently, the Horsefly district results were compared with results from other forest districts that were surveyed, and with results from community watersheds, where there should be an emphasis on water quality management.

Fecal counts averaged 0 or 1 on 70 percent of the sites surveyed. Only 10 percent of the sites had more than 5 feces and 3 sites had a feces count of 12. The Horsefly district averaged 1 cow feces per 100 metres of streambank, whereas the other 3 districts averaged 7 cow feces per 100 metres (Table 4). Horsefly results, which were not from community watersheds, were also compared to sites in other districts that were within community watersheds (Table 4). Fecal counts were lower in Horsefly than the average community watershed counts.

We conclude that the water quality impacts from cattle feces in the Horsefly district are low in comparison with other districts and community watersheds.

Table 4: Average numbers of cattle feces in a 3-metre by 100-metre band adjacent to the water body

	Lakes	Streams	Combined
Average of three other districts	9.0	4.5	6.7
Community watersheds	2.5	1.0	1.4
Horsefly	1.0	0.5	0.75

Objective 3: Providing adequate forage in ungulate winter ranges

A network of ungulate winter range has been established in the Horsefly Forest District to provide areas of thermal cover and winter forage. Designated winter ranges are mapped on the range tenure maps and are referenced in the range-use plans.

In some years, excessive browsing by cattle may limit both the availability and quality of food for deer in winter.

Methods

Amounts of browse on shrubs is the combined effect of both wildlife and cattle.

For most shrub species, second-year browse levels are a better measure of impact on the shrub layer than current-year browsing levels. Second-year browse levels in excess of 25 percent are considered detrimental to plant growth, and in excess of 50 percent are highly detrimental (Hansen, 1995).

Six pastures containing winter range were assessed, with a total of 150 sites distributed along 30 transects. At each plot, browse utilization was estimated on both current-year and second-year growth. At each plot centre, representative plants of each species were selected and the total number of leaders and the total number of browsed leaders was counted and percentage utilization was calculated. The dominant browsed shrub species in each plot was also listed.

Results

The first- and second-year browse levels were averaged across each transect (10 measurements on 10-metre intervals). A total of 8 percent of the transects averaged second-year browse in excess of 50 percent. An additional 7 percent of the transects averaged 25 to 50 percent. Only 2 percent of the transects averaged first-year browse in excess of 50 percent and 2 percent of the transects averaged 25 to 50 percent browse.

Only one of the six pastures surveyed had a high percentage of second-year browse. This pasture had 27 percent of the plots in excess of 50 percent browse utilization and a further 20 percent of the plots in excess of 25 percent browse utilization. All other pastures had less than 10 percent of the winter range with second-year browse over these limits. Average browse use on first-year growth never exceeded 10 percent on any of the 6 pastures. We conclude that the overall maintenance of ungulate winter range condition is satisfactory and cattle do not appear to be impacting this resource.

Objective 4: Maintaining healthy seedlings in regenerating cutblocks

Recently-harvested cutblocks are an important range resource in the Horsefly district, in some areas providing the only available forage. A long-standing concern across the province has been that livestock can damage tree seedlings and therefore compromise the free-growing objective. Seedling damage and survival was measured in 10 regenerating cutblocks. Seedling damage and survival is only one component of the silvicultural issues with grass-tree-cattle interactions. Outcomes such as areas of not-sufficiently restocked, reduced growth due to browsing or grass competition, and soil compaction, were not assessed.

Methods

The cutblocks were divided into stratums based on topographical features of the cutblock. A transect line was randomly chosen across the cutblock and the nearest seedling to the transect line was sampled at 10-metre intervals. A total of 38 transects of approximately 50 trees per transect—a total of 1,873 trees—were assessed for damage.

The assessment followed the *Kamloops Regional Cutblock Grazing Guidelines*. Damage is defined as greater than a 30-degree bend to the stem, a scar over 33 percent of circumference or 20 percent of stem length, a broken leader, a seedling stepped on, a seedling pulled from the ground or more than 25 percent of the seedling buried. Damage to over five percent of the seedlings within a stratum constitutes a level of concern.

Results

Overall, six percent of the total seedlings were damaged. In a population of 10 surveyed cutblocks, 2 had 5 percent damage and 2 had 10 percent seedling damage. The most common seedling damage was browsing (2 percent), and scarring (2 percent), then broken leaders (1 percent) and bending (1 percent).

The overall level of seedling damage slightly exceeds the guideline of 5 percent, and no cutblock exceeded 10 percent damage. Given the statistical limitations of this survey, we conclude that the objective for seedling damage by livestock is still satisfactory. The implications of the seedling damage on tree-growth potential or mortality, or on stocking standards, were not assessed.

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Compliance and Enforcement Audit and Special Report on Range Activity in the Horsefly Forest District

Board Reports on the Audit Results

FPB/ARC/47S

July 2002

Reports from the Board

In 2001, the Forest Practices Board completed a comprehensive examination of range practices carried out under the *Forest Practices Code of British Columbia Act* and related regulations (the Code) in the Horsefly Forest District. The examination had three components: an audit of range agreement-holders' compliance with the Code; an audit of the appropriateness of government enforcement of the Code for range practices; and a survey to determine whether forest resource objectives established under range agreements were being achieved on the ground.

The following are the Board's comments on the audit results. The full report on this audit also contains the auditor's reports and results of the survey. The full report is available on the Board's Web site (http://www.fpb.gov.bc.ca), or by calling 1-800-994-5899. This is the Board's first detailed examination of range practices under the Code.

Board report on the compliance and enforcement audits

Compliance audit

The compliance audit examined range activities for the period between May 1, 2001, and September 10, 2001. Key range activities carried out during this period, and therefore subject to audit, were:

- range-use planning for 21 range-use plans;
- grazing of approximately 18,000 animal-unit months of forage; and
- hay cutting of approximately 50 tonnes of hay.

The audit found a high level of Code compliance by range agreement-holders in the district. The planning and practices of 18 range agreements were examined by the audit and only one situation of significant non-compliance was identified. Staff observed one range licence with stream bank impacts resulting from range practices. The stream impacts extended for approximately 200 metres along the stream, and were the result of grazing levels significantly greater than approved in the range-use plan for the area. It is the Board's opinion that the stream impacts were not a result of damage caused by spring runoff.

The Horsefly Forest District has a wet climate, leading to greater forage production and a generally lower level of grazing activity compared to most districts with range agreements. Consequently, the district generally has less risk of overall impact on riparian areas from grazing activity compared to other forest districts in the province. The Board's June 2002 report, *A Results-Based Assessment of Range Practices under the Forest Practices Code in Maintaining Riparian Values*, shows that in the Horsefly Forest District, 97 percent of examined riparian sites associated with range agreements were in proper functioning condition.

The Board recognizes that grazing has an effect on the condition of the land, and a certain amount of impact to riparian areas resulting from range practices on Crown land is considered acceptable under the Code. For example, where cattle must cross streams and other riparian features to access grazing areas, it is reasonable to expect some damage to these areas from trampling, grazing of riparian vegetation and introduction of cattle feces. Where stream impacts are confined to cattle-crossing areas, the Board believes this is within the appropriate limits of damage envisioned by the Code. This is equivalent to the Code's acceptance that harvest practices will have some effect on forest values. Range practices can be managed to localize cattle impacts to short segments of riparian areas so that the proper functioning condition of the entire riparian feature is maintained.

Enforcement Audit

The enforcement audit examined government's range enforcement activities for the period between September 1, 2000, and August 30, 2001. Government compliance and enforcement activities carried out during the audit period, and therefore subject to audit, included:

- the design of the compliance and enforcement organization and business processes;
- the planning, conduct, recording and reporting of range compliance and enforcement activities; and
- the systems and processes used to manage compliance and enforcement activity.

In enforcement audits, there is not necessarily a direct relationship between the results of forest or range practices and the appropriateness of government's enforcement of the Code. A district's compliance inspections could reveal numerous Code contraventions resulting from poor practices, and where the district addresses these contraventions through various enforcement actions available under the Code, it could achieve appropriate enforcement overall. Conversely, range agreement-holders could be conducting practices in accordance with the Code, but government's failure to inspect practices in areas of environmental risk may result in inappropriate enforcement of the Code.

The Board found that the Horsefly Forest District did not implement an effective compliance and enforcement program for range activity at the time of the audit. The fact that range practices generally complied with the Code is primarily the result of good range practices by most range agreement-holders, combined with a relatively low level of range activity in the district.

The audit evidence indicates that while range activities were inspected, they were not inspected in a way that properly evaluated activities on higher-risk sites, such as riparian areas. Consequently, the inspections did not detect or prevent the few non-compliant practices observed by the auditors.

In addition, the district did not adequately document its range inspections. Because of this, important information is not retained on file when compliance and enforcement staff leave

the district. The information resides in the memory of the departing staff person and is not available to staff who take over compliance and enforcement responsibility.

Recommendation

In accordance with section 185 of the *Forest Practices Code of British Columbia Act*, the Board makes the following recommendation:

> The Ministry of Forests should implement an effective compliance and enforcement program for range practices in the audit area in accordance with its current policy.

In accordance with Section 186 of the *Forest Practices Code of British Columbia Act*, the Board requests that the Ministry of Forests advise the Board of how this recommendation has been addressed by March 31, 2003.

The Board made several recommendations in its report on range practices in riparian areas that are relevant to these audit findings, including recommendations to develop a clear Code definition of proper functioning condition and a clear measure to determine when range practices in riparian areas are not in compliance. The recommendations are not duplicated here. Instead, readers are encouraged to refer to that report, which is located on our web site at: www.fpb.gov.bc.ca/reports/special/Range/sr11s.htm

Board Chair's special report on range practices in the Horsefly Forest District

Section 189 of the Code enables the Board Chair to comment on facts and issues identified during the audit that are relevant to stewardship of the land, as generally represented in the Code's preamble.

Assessing the effectiveness of, and compliance with, range requirements under the Code provided the Board with the opportunity to assess how well the Code sets out range requirements and how well those requirements are being implemented. Auditing the appropriateness of government enforcement allowed for an assessment of how government enforcement is contributing to the achievement of Code range requirements.

In general, the results of the survey and compliance audit showed that range practices in the Horsefly Forest District have a low impact on the forest resource. Specifically, the survey noted that objectives for riparian areas have been achieved. Water-quality impacts from cattle feces are low, overall maintenance of ungulate winter range condition is satisfactory, and grazing on cutblocks has not resulted in significant negative impacts to seedlings. The compliance audit confirmed the high level of compliance with the Code in the district. The findings of the enforcement audit showed that these low impacts are not likely a result of the district's range enforcement program.

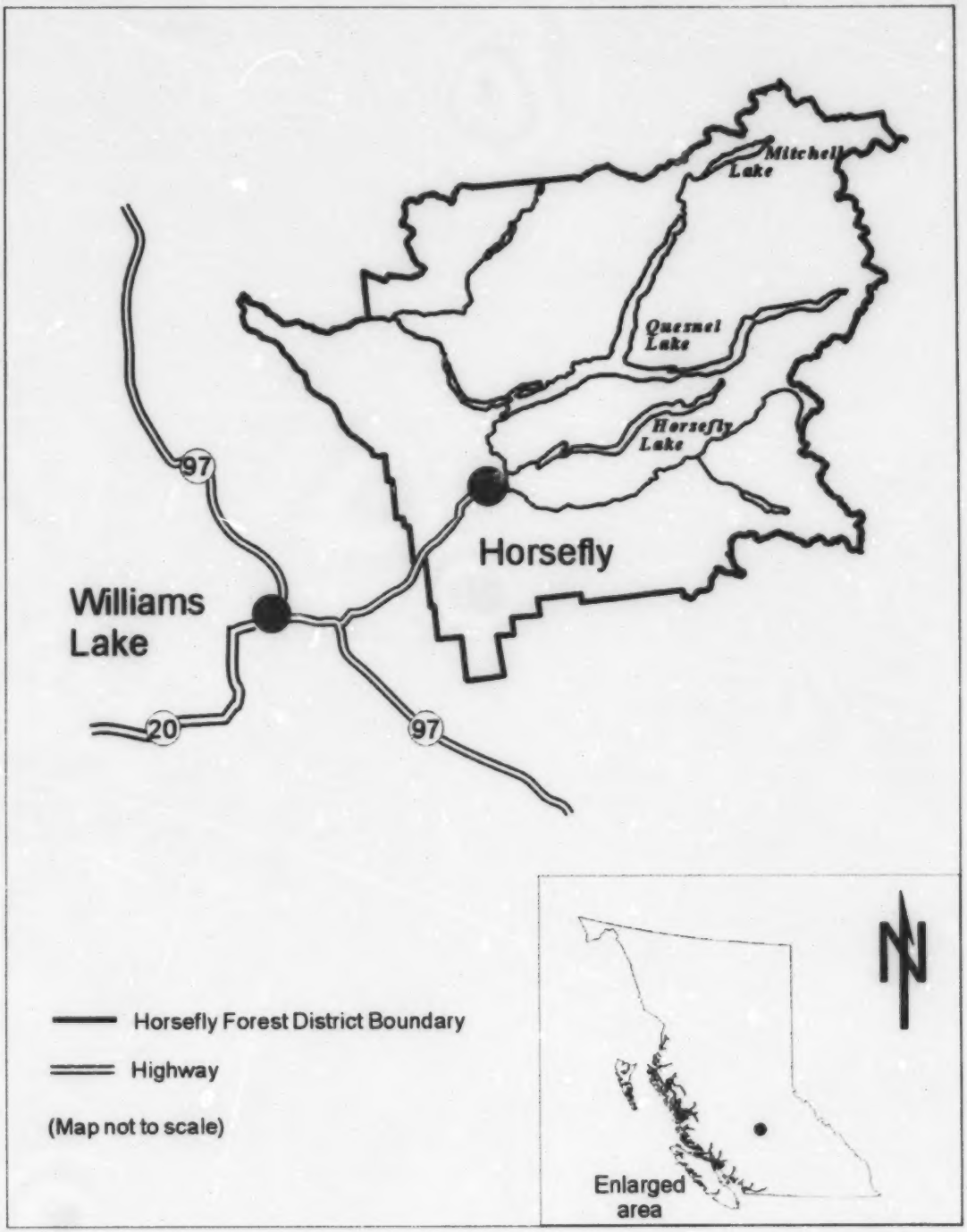
While conducting their fieldwork, auditors encountered areas of Crown grazing land in close proximity to private grazing lands. Private grazing land is not subject to the Code. Nonetheless, practices on private land may result in adverse impacts to Crown land in the form of sediment delivered to a fish stream, or by livestock trespassing from private land using Crown land. Much of the grazing land seen by the public is private land, and there is seldom any visible demarcation between Crown and private grazing land. As a consequence, some practices that the public sees as offending their expectations for the management of Crown rangelands may actually be occurring on private land.

The fieldwork also noted that many range-practice requirements contained in the Code are vague. The lack of clear requirements makes it challenging to effectively implement, monitor and audit the requirements. The move to a results-based code means objectives for range practices must be more specific and measurable if they are to be effectively implemented, monitored and audited.

It is reasonable to expect all agreement-holders on Crown land, including range agreement-holders, to understand the legal obligations associated with their agreement and the required results of the forestry or range practices. This knowledge will be particularly important under a results-based code. Therefore, range agreement-holders should ensure that they understand the requirements and obligations associated with their agreements. The Chair encourages regulatory agencies to provide and promote educational opportunities for range agreement-holders.

W.N. (Bill) Cafferata, RPF
Chair, Forest Practices Board
July 18, 2002

Audit of Range Activities in the Horsefly Forest District



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